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ABSTRACT

The document places emphasis upon the need for school farm and garden programs. It is noted that today's youth are denied opportunities for meaningful physical work experiences in the home, community, and school. Reasons for lack of opportunities include overcrowded residential areas, lack of land areas, schools ignoring their charge to provide learning opportunities, and lack of worthy use of leisure time. It is believed that not enough concrete learning experiences in educational institutions are provided; thus, guidelines are given for implementing school gardens, school farms, orchards, and berry patches. Other related facilities and programs suggested include restoration of a saw mill, gristmill, general store, community church, post office, pioneer museum, or blacksmith shop. Some special events suggested are apple-butter making, cornhusking bees, maple-syrup making, quilting bees, candle making, soap making, butter making, ice-cream making, and dye making. It is believed that a far-sighted school district will provide for multiple use of farm and garden facilities and related programs to reach a wide variety of participants (including preschool children and the handicapped). Significant values of farm and garden programs are listed, and curriculum development activities are surveyed. (FL)

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SCHOOL GARDENS AND FARMS--

ASPECTS OF OUTDOOR EDUCATION

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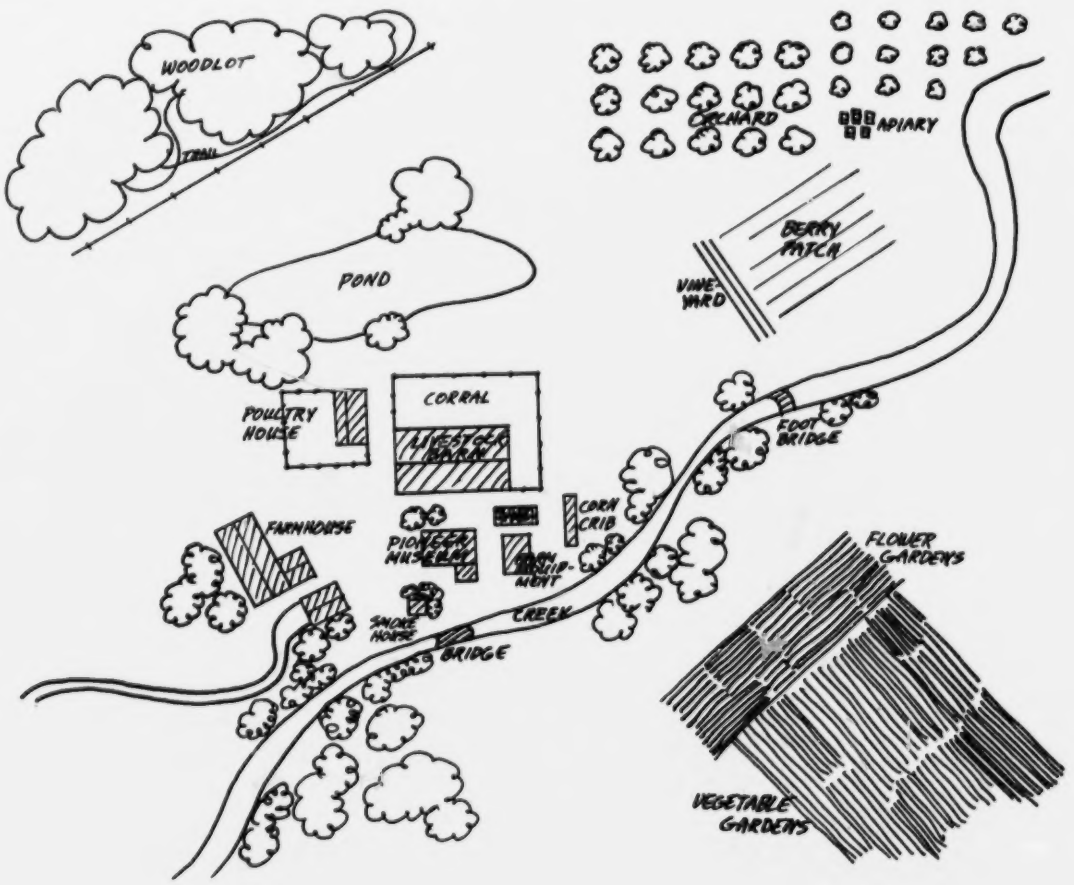

SCHOOL FARM AND GARDEN SITE

SCHOOL GARDENS AND FARMS--ASPECTS OF OUTDOOR EDUCATION

> The outdoor education coordinator of a large school system was showing a class of fourth graders around the school farm. He took them into the barn where a Rhode Island Red could be seen setting on her nest. As the group walked over toward the hen, she stood up and dropped an egg before the eyes of all! The outdoor education coordinator picked up the egg and said, "Kids, this is the freshest egg you'll ever see!" One little boy standing near the front replied, "Who do you think you're fooling? Chickens lay white eggs!"

School farms and gardens are exciting developments in outdoor education. They are relatively new patterns of this emphasis in education, which broadly defined, means education in the outdoors, and education for the outdoors.[1]

It is a humorless matter that many children don't know that milk comes from cows . . . that honey is made by bees . . . that pigs produce bacon . . . and that eggs can be brown! Today's youth are denied opportunities to live close to the earth from which man sprang.[2]

Because of certain societal and school conditions existing today, the need for school farm and garden programs is great:

1. Many children and youth are denied opportunities for meaningful physical work experiences either in the home, community, or school.

2. Children and youth are not provided experiences for the education of their hands and bodies. Education, especially in secondary schools, is limited almost solely to the exercise of the intellect.

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[1]Julian W. Smith and others, Outdoor Education. Englewood Cliffs, N.J.: Prentice-Hall, 1963, p. 19.

[2]Julian W. Smith, "Outdoor Education for Lifetime Interests." Childhood Education. Washington, D.C.: Association for Childhood Education International, p. 79, October 1967.

3. Because more than two thirds of our population live in metropolitan areas, often squeezed into apartment building complexes, other crowded residential areas, and ghettos, many young people have no opportunities to know rural life, to participate in activities on large land areas, or even to cultivate backyard gardens.

4. For the most part, schools are ignoring their charge to provide children and youth with learning opportunities which will achieve the goal of worthy use of leisure time.

5. Learning principles such as learning by doing, using all the senses, real-life problem solving, learning in context, and concrete instead of abstract learning experiences are not practiced in many of our nation's educational institutions.

6. The majority of school activities provided children and youth are preparation for life, getting ready for something to come, and rarely preparation for living better in the present.

7. Outdoor education programs, including educational experiences through school farms and gardens, provide rich and worthwhile learning opportunities which meet present school and societal conditions and problems. School farms and gardens are particularly appropriate for today's children and youth. They are effective and impressive laboratories for learning. They link the present to the past and help prepare for the future. Outdoor education through school farm and garden programs can foster growth and achievement in students and teachers that would never occur in the traditional indoor educational settings. The benefits of these outdoor learning programs are dramatic and sometimes even startling.

Will they be lost to our children, gone forever--the smell of newly mown hay . . . the experience of sitting on a barnyard fence . . . the velvety feel of a young calf . . . the grunting of piglets . . . and brown eggs?

PHYSICAL FACILITIES AND PROGRAM ACTIVITIES

School Gardens

School gardens range in size from several acres to over thirty. They may be solely vegetable gardens or a combination of vegetable and flower.

A certain amount of ground, largely dependent upon the total acreage available, is given to a single classroom and teacher. Generally one-half an acre or so is given to an average size classroom. This area is then used as the children and their teacher desire. In addition, there is often a "common garden" area which many classrooms and/or schools plant and attend. In this area, some of the vine type plants which require a lot of growing space, such as watermelons, pumpkins, and squash, are grown communally. Most programs are organized so individual classes spend one-half a day per week at their gardens.

When students and their teacher decide what vegetables and/or flowers they wish to grow, the seeds are ordered. The ground is plowed, and then youngsters rake it, measure rows, and plant seeds.

After the garden layouts are determined and seeds put in the ground, children and teachers rake, hoe, and weed their gardens. This continues during the summer months and into the fall, as necessary. The harvested produce is shared among the children who take it home for their mothers to prepare. Sometimes a class will themselves, as a special event, prepare a meal with food from their garden.

Plants commonly chosen by children to be included in their gardens include carrots, green beans, beets, potatoes, corn, cabbage, turnips, tomatoes, lettuce, brocoli, peppers, eggplant, parsnips, radishes, onions, and peas. There are many things grown which children have never before eaten. Consequently, they find they enjoy foods which they believed they disliked.

Pumpkins, usually grown in a communal plot, are given away first to those youngsters who are faithful in participating in the program--weeding and cultivating their class's garden and the communal plot--during the summer months (the school system arranges transportation to the site throughout the summer). Any remaining pumpkins are harvested by classes for school Halloween festivities.

Sometimes sunflowers are grown and the seeds are used for bird feeding during the winter months. Popcorn is often grown and may be used for an economics project by a classroom in later months.

Other "special" plants grown sometimes include herbs and plants which will make dyes (discussed later under Special Events).

School Farms

1. Yesteryear

The farm of "yesteryear" is the most popular kind of school farm and serves the greatest number and range of children and youth. Depending upon the region of the country, the farm may be a typical midwestern design, a New England type, or a sod farm of the western plains. "Yesteryear" may mean a farm like those operating around the early 1900's or a pioneer farm of early America.

A variety of farm animals and fowl--including milk cows, goats, sheep, chickens, ducks, horses, mules, guineas, pigs, rabbits, and geese--is kept. Crops such as wheat, alfalfa, corn, buckwheat, and oats are grown just as in "yesteryear." Many of them are used as livestock and poultry feed.

A farm pond stocked with fish is usually included on the site. A barnyard with fences to sit on, a well and windmill, a barn with a hayloft to jump in, and fence rows abounding with game are all part of the facility.

2. Modern

Some school systems maintain modern farms, especially as a vocational education emphasis for secondary youth. Crops are grown in cooperation with the county agricultural agent, and beef cattle, dairy cows, and fowl are often raised.

Concomitant Facilities and Activities

1. Orchards and Berry Patches

Orchards are a more specialized part of a garden or farm program. They are composed of either dwarf or regular size trees including apple, peach, pear, plum, cherry, and apricot. Pruning, grafting, spraying, and picking are all learning experiences for youngsters. In addition, such fruits as grapes, blueberries, raspberries, strawberries, and currants are raised. Sometimes nut groves are included.

2. Nurseries and Greenhouses

Shrubs, tree, and plant nurseries and greenhouses as part of a school garden or farm program, or a school forest, are of value to children, particularly secondary school youth. The stock is used for landscaping school sites, school Christmas trees, and other purposes. Such an emphasis at the secondary level is an important part of vocational education, science, and other areas of the curriculum.

3. Apiaries

Raising bees is an exciting and intriguing experience. Hives may be placed in an orchard or another suitable place on a school farm or garden site. This activity appeals to both elementary and secondary children and youth.

4. Pioneer Museums

A pioneer museum is a valuable part of a school farm. It may be housed in an old barn, a restored log cabin, or another suitable place. Agricultural equipment and old-time household articles and furniture may all be collected and exhibited. Community laymen are often willing to donate "old stuff" to such museums when they know it will be cared for and used by many. This kind of museum should be a place where students can actually experience the past. The "antiques" are to be touched, turned, opened, put on, and moved. The type of museum where people walk quietly and peer into labeled display cases is out of order here. Students are encouraged to wonder, dream, and experience to some extent a time that was, a life their forebearers knew.

5. Other Related and Special Facilities and Programs

a. Sawmill

A school system fortunate enough to buy or be given an old-time sawmill might restore it on a school farm site, or some other location, and offer a unique program in vocational education for secondary school boys and in social studies for elementary children. The collecting of pioneer lumbering tools and the building of a museum to house them would be a worthwhile related program.

b. Gristmill

The restoration and operation of a gristmill could provide worthwhile learning experiences for many age groups and a practical means of grinding some school farm products.

c. General Store

Restoration and operation of an old-time general store could bring valuable and enjoyable educational experiences to a whole community.

d. One-Room Schoolhouse

Abandoned one-room rural schoolhouses are still standing in many parts of the country. A school system might undertake the restoration of one and then encourage individual teachers and their students to "keep school" in it for an entire day, dressed in the clothing and carrying out the customs and practices of "yesteryear." Such a program would most certainly appeal to the older members of the community too.

e. Community Church

The refurbishing of an abandoned but historically significant community church has many possibilities for social studies.

f. Post Office

A school district might restore an old-time post office. It could even be moved to another site on which are located other special facilities such as a general store.

g. Blacksmith Shop

Blacksmith shops can be found in our nation's small towns and cities. Restored and operating, a shop could provide meaningful work experiences for secondary youth and significant social studies learning opportunities for all. The help and advice of a retired blacksmith would be most desirable and needed for this kind of facility and program.

h. Nature Museum

A community school nature museum could be operated in almost any kind of facility as part of a comprehensive outdoor education program. A school district might investigate the possibility of housing the museum in an abandoned one-room school house or a closed railroad depot.

i. Pioneer Life Center

A large urban or suburban school district especially might consider the possibility of establishing and operating a "Pioneer Life Center" or a "Rural Life Center" which would be a combination of the school farm and garden programs and other related and special facilities and programs. This would probably be a long-term project for a school system and community to undertake, but it would be a very important part of a comprehensive outdoor education center. For millions of youngsters and adults who live and work in urban areas, learning and experiencing events at such a center could be among the most thrilling experiences in their lives.

Staffing the Facilities and Programs

A variety of persons may staff farm and garden programs: retired laymen with special skills may be recruited as part-time or full-time volunteers or paraprofessionals to work in the programs. Retired educators may also be utilized in part-time or full-time positions. A school system outdoor education specialist may give one-half of his time to farm and/or garden programs and the other half to the resident outdoor school and other outdoor education programs. The community school director may devote a portion of his time to the farm and garden programs. A full-time salaried

layman may work as the facilities director for the farm and garden programs. The school system's curriculum coordinator or science coordinator may give part-time assistance and direction to the programs. And, of course, teachers who work with their own classrooms and others, are the key staff members in such programs. In addition, every community has a lot of willing volunteers if time is taken to locate them. The members of community service clubs and the local historical society may be willing to give their assistance.

Special Events

A number of special events may be held for individual classrooms, grades, schools, and the whole community. These might be connected with certain seasons of the year. They might be planned as culminating activities or introductory activities to certain teaching units. They might be offered as valuable educational experiences which have no direct relation to any one unit of study.

Such special events or activities might include the following:

1. Apple-butter Making

   Children might participate in the growing and picking of apples, the making of cider, and finally the cooking of apple butter. They might use old-time family recipes and authentic equipment such as a copper apple butter kettle and a long-handled stirrer with cornhusk ties to keep the apple butter from sticking. The apple butter would be cooked over an open fire. The youngsters might even grow and grind wheat, and finally make their own bread to eat, spread with the apple butter.

2. Cornhusking Bee

   Field corn and/or popcorn which the children have grown and picked themselves might be used. The popcorn could be popped and

strung for Christmas tree decorations and/or eaten with cider or grape juice which youngsters have made from their own products. Square dancing or folk dancing might be part of the occasion, which could be a community affair.

3. Maple-syrup Making

Collecting and boiling the sap of "sugar"-hard maples is a worthwhile educational activity. Youngsters might also make "maple ice cream" by combining the fresh syrup with snow. They might make maple sugar candy. Marketing the syrup and/or candy and sponsoring a pancake supper using their own maple syrup could be meaningful economics projects carried out by young people.

4. Quilting Bee

This might be a school or community event. Such an activity would have special meaning for adults, especially senior citizens. School art, home economics, and social studies classes would have special interests in this event.

5. Candle Making

This might be a school, class, or whole community event, and would be especially appropriate during the Christmas season. Authentic old candle molds and methods may be used. The project would be particularly related to social studies, art, and home economics. An economics learning experience might be provided through marketing the products.

6. Soap Making

This activity would be more appropriate for a single classroom or perhaps a grade. Authentic old-time methods could be used. The subject matter areas of science and social studies especially are closely related to a project of this nature.

7. Butter Making

The entire process of milking, pasteurizing, and churning butter in authentic old-time churns would be a valuable learning experience. As a finale, youngsters could eat their own product on rolls, biscuits, bread, or muffins which they have baked themselves. This particular activity could be part of a larger event--an old-fashioned dinner which students could plan and execute. Using and cooking their own grown produce, they might serve the dinner for their teachers, their parents, the school administration, school board members, a selected group of community people such as some senior citizens, or just for themselves. This kind of activity, of course, is related to almost every area of the school curriculum.

8. Ice-cream Making

The experience of making ice cream would probably be most appropriate for a single classroom or a small group of students. It could include many aspects from milking cows to using an antique ice cream freezer and an old family recipe. Related especially to social studies, science, arithmetic, and home economics, it would indeed be a pleasurable learning activity for all those involved in it!

9. Dye Making

Many colors of dyes may be made from weeds, plants, and trees including things students have purposely grown themselves. Students might use the dyes for clothing they have sewed, drapes or curtains they have made for the school, art projects, and other purposes. This activity has implications for art, science, home economics, and social studies.

Program Relationships with Various Areas of the School Curriculum

Farm and garden programs are deeply related to almost every area of the school curriculum. Language arts, history and social studies, the biological and physical sciences, home economics, art, arithmetic and mathematics, health education, and industrial arts are among those subject matter areas which can be enhanced, vitalized, and made more meaningful through learning experiences provided in school farm and garden programs.

PROGRAM PARTICIPANTS

Farm and garden programs may be designed to serve the needs and interests of nearly everyone in the community. A far-sighted school district will provide for multiple use of school farm and garden facilities and programs for a wide variety of participants. In school districts where the community-school philosophy of education is embraced and practiced, this will be a natural and easy thing to do.

Specifically, the following populations might be served by or involved in farm and garden programs: preschool children, elementary school children, secondary school youth, handicapped youngsters, students who are behavior problems in and out of school, and community adults.

Preschool Children

Farm and garden programs are especially appropriate and exciting for preschool children. They are helpful in extending vocabulary and speaking skills by giving young children opportunities to see, touch, and feed baby animals, and providing them with new experiences away from home and the familiar school building. Preschool participants in such programs should include disadvantaged children as well as advantaged. Federally supported

preschool programs should avail themselves of school farms and gardens for extending the experiences and learning of their pupils.

Elementary School Children

Farm and garden programs should be integral parts of the curriculum for all elementary school children. For the lower elementary grades which often teach units on where our food comes from, farms, and baby animals, real-life experiences on a school farm and in a garden program would be valuable. Young children, even if they may be too young to participate in the entire process of plowing, planting, weeding, cultivating, and harvesting plants, may be provided some opportunities to plant seeds and to pick vegetables and/or flowers.

Middle and upper elementary children may utilize school farms and gardens more extensively than any other student group. Comprehensive school garden programs are usually offered for the fourth and fifth grades especially.

The school farm can provide numerous experiences such as caring for animals, learning how animals reproduce, and making farm repairs for grades three to six. Schools which have pioneer farms and museums can provide exciting learning opportunities to all elementary children about life in days of "yesteryear."

Youngsters participating in programs for the disadvantaged, including ESEA Title I, can benefit from farm and garden experiences.

Secondary School Youth

Secondary school youth, both boys and girls, may participate in farm and garden programs. Activities for them may be of a more specialized nature such as agriculture experiments, animal breeding, development of new varieties of fruit, disease prevention and control, conservation practices, maintenance

of buildings and fences, and development and operation of pioneer museums. For some, a prevocational emphasis might be most appropriate.

Handicapped Youngsters

Crippled and otherwise physically handicapped, mentally retarded, emotionally disturbed, blind, deaf or hard of hearing, and multiply handicapped children and young people may participate in farm and garden programs. Youngsters in wheelchairs may rake and hoe a garden. Farm and garden areas may be built to accommodate wheelchairs and crutches. For youngsters who are blind, few things may equal the excitement of holding warm and wiggly animals, or feeling smooth soil as they plant seeds in a furrow. Many opportunities exist for handicapped youngsters which will enrich their lives and increase their learning and adjustment.

Students Who Are Behavior Problems

Outdoor education programs which emphasize learning in all areas of the curriculum through work experiences have been proved to be highly successful. Farm and garden programs abound with opportunities for meaningful work. Digging wells, building roads, making fences, constructing farm buildings, restoring and repairing buildings, plowing, painting, spraying, pruning, making hay, and other similar activities are appropriate for these kinds of students, and other youngsters as well.

Community Adults

Many adults in the community may be involved in school farm and garden programs as regular participants, donors, and resource persons. Parents might participate in special projects with their children. Members of groups such as a local garden club and the Audubon Society might be involved in

various ways. Retired farmers, teachers, and other senior citizens might participate. Many senior citizens who live in places where gardening is impossible or difficult might wish to grow flowers and/or vegetables on the school garden site if transportation to and from it could be arranged. Laymen whose work is related to farms and gardens might volunteer to participate as advisors. A good community school education program will find many ways to provide year-round farm and garden learning experiences for adults of all ages and vocations.

VALUES OF PROGRAMS

The values of school farm and garden programs are many. They accrue to students, teachers, administrators, parents, and families, board of education members, and community laymen. The following are among the most significant values of these programs:

1. Teachers gain new perceptions of individual students' needs, strengths, and interests because they see them in new roles and settings.
2. Opportunities abound for encouraging and developing student leadership in youngsters who are not leaders in the traditional educational environments.
3. Students gain new understandings of themselves and their classmates as learners and as human beings as they are active in new educational settings and in new roles.
4. Students have a more active role as learners and in directing their own educational experiences than they do in the traditional school environment.
5. Students gain new perceptions and understandings of their teachers as human beings because they see and work with them in new ways and settings.

6. Teachers gain new perceptions of themselves as persons and professional educators as they teach and learn in new educational environments.

7. Teachers gain new skills and interests for their personal living.

8. Opportunities are provided for family visits and involvement, including actual work, on the farm and garden sites. In addition, there is carryover to the home life of families; school farm and garden activities lead on to experiences which families can participate in together in the home setting.

9. Opportunities are abundant for the meaningful volunteer participation of retired adults, nonworking mothers, and other community laymen. Such community involvement in school affairs builds support for and interest in the schools, increases community unity, and provides opportunities for adults and youth to understand each other better.

10. Adults are provided opportunities for learning new skills and interests when school farm and garden programs are part of a community adult education curriculum.

11. Children and youth are provided meaningful work experiences.

12. Opportunities abound for learning through real problem-solving situations and gaining problem-solving skills.

13. Learning occurs through direct instead of indirect experiences and through working with concretes instead of abstractions.

14. All the senses--tasting, feeling, and smelling, as well as seeing and hearing--are utilized in the learning process.

15. Learning experiences integrate subject matter areas; they are comprehensive and help students perceive things in context.

16. Students gain an "education of the hands" as well as of the intellect and feelings.

17. Indoor classroom learning experiences are revitalized.

18. Skills and interests are gained for the wise use of leisure time in childhood and adult years.

19. Group pla ing and cooperative activities are necessitated.

20. Opportuni es are also present for many individual student projects.

21. Learning the school farm and garden programs is a continuing experience; it is yearlong nstead of merely lasting a day, week, month, or season. There are implicatio s for extended school year operations.

22. One of the few opportunities in education today for learning experience continuity from one grade to the next is provided. Students who plant a garden during the spring in one grade will continue their involvement in the program by harvesting their crops during the fall in the next grade. Carryover from grade to grade is required.

23. The nature of the programs is determined locally by teachers, students, and the community, not dictated by textbooks.

24. Contributions are made to improving the quality of the natural environment, including such specific benefits as erosion control and soil restoration.

25. Learning activities are such that they can be brought to closure. Students gain a real sense of accomplishment by seeing the tangible results of their activities. "It was a task where we could see what happened. We planted the seeds, we took care of the plants, we harvested the crops, and finally ate them!"

26. Teachers have many opportunities to help students learn about the process involved in carrying out an activity. They can help youngsters "recognize the process and emphasize the throughput, rather than merely the input and output."

CURRICULUM DEVELOPMENT ACTIVITIES

Identification of Community Resources

Community resources for farm and garden programs should be surveyed. By resources is meant:

(1) People with skills, knowledge, and/or interest in the farm and garden programs--laymen, parents, students, businessmen, and educators;

(2) Sites - physical locations where programs might be provided;

(3) Equipment and tools;

(4) Books, periodicals, films, filmstrips, pamphlets, and other materials;

(5) Possible sources of funding and/or donations to the programs in terms of money, equipment and supplies, land, animals, and people's time.

Resources from other geographical areas should not be overlooked. Some school districts have acquired items as large as pioneer log cabins and sawmills from many miles distant. These resources have been dismantled, moved to the school districts' farm and garden locations, and restored by students, teachers, and others as worthwhile learning projects.

All identified resources, even individual persons and their skills, might be listed and described on cards and then filed for future reference and use.

Planning for Programs

Planning for programs should involve a number of activities. Research on the change process[3] indicates that thorough planning prior to (and then during) the operation of a new program is vital to its acceptance, use, and success. Furthermore, planning for new programs should involve all those,

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[3]ESEA Title III Office, Michigan Department of Education, A Study of the Process of Change in Education. Lansing, Michigan, 1970.

at least on a representative basis, who will eventually be affected by the program when it is in operation. This means then that students of various grade levels, teachers, administrators, parents, and laymen should be part of the planning for school farm and garden programs. They should be meaningfully involved. Usually an advisory committee or council of such membership, which is given the power to make decisions and guide the development of the program, is most effective.

One helpful step in planning for programs is the actual on-site visitation(s) of similar programs already in operation somewhere else. While mass media communication channels are very effective in helping people become aware of new ideas and programs, interpersonal or face-to-face communication is most effective in persuading people to adopt or adapt new ideas and to learn fully the problems and promises of already operating projects.

Reviewing the resources already identified, especially human resources, is another significant phase of planning.

Very important is the identification of specific needs, problems, and interests of youngsters, preschool and school age, and community adults, which the school garden and farm programs will be designed to meet. The school and community should be made aware of these needs, interests, and problems, and program planning should be built upon them.

The "power people," those in formal and informal position of leadership including opinion leaders in the school system and community, must be persuaded of the worth of school farm garden programs. They must be asked at least to legitimize or sanction the idea, if not be included in the planning of the program. Otherwise they may undermine the program at a later time.

Inservice Education

Because the quality of any program will depend to a large extent upon the skills of the school system's teachers, inservice education is an important part of program planning. Teacher skills, knowledges, and interests may be improved through a variety of teacher education patterns including graduate level courses for credit provided by universities or colleges.

Pilot Projects

Before new ideas are operated on a full-scale basis, it is wise to first carry out a "trial plot" or pilot project for an adequate length of time. Agriculture, business, and industry usually always try out new ideas on a limited basis before expanding them to full operation. A pilot project involving one or two grade levels, or two or three teachers and their students, and lasting several months or a year, would be a wise procedure. This would afford time to evaluate outcomes adequately, test economic feasibility, work out unexpected problems, provide inservice education for the other educators in the system, and widely publicize the program.

And, if the pilot project should not prove successful, it would be easier to terminate plans for widespread implementation of the program, or to correct problems, change emphases and procedures, and continue the pilot project for another trial period.

Evaluating Programs

Evaluation should be an integral part of the program. It is needed to find out what learning is occurring, to identify program weaknesses and strengths, and to make decisions regarding the continuing operation of the program.

Student learning and teacher attitudinal and behavioral changes may both be evaluated. Adequacy of facilities, transportation, scheduling, and a variety of other nonhuman elements may be assessed. Parents as well as teachers may be asked to evaluate student growth and interest. Students may be asked to participate in self-assessment procedures, and likewise, teachers involved in the programs. In other words, a variety of groups of people who are somehow involved in the programs, and non-human factors, may be evaluated, and various groups of people may aid in carrying out the evaluations.

It is especially important that the evaluation design for farm and garden programs be "clean" and thorough. There is often more pressure put upon educators to prove the worth of programs of this kind than the long-practiced traditional school practices.

The following are suggested as important elements of good program evaluation:

1. Major program goals. These are overall or general goals of the program which should be identified. They may refer to students, to teachers, to the community, or other targets.

2. Specific program objectives. These represent a breakdown of each major program goal into smaller, more specific objectives. Specific objectives should be stated for each major program goal. They can be stated in the affective, cognitive, and psychomotor domains, and should be written so they are measurable. They should cover the broadest spectrum possible, including sensitivities or feelings to be developed, concepts or facts to be acquired, and skills or movements to be achieved. For example, they may relate to changing students' attitudes toward school, an accomplishment of a specific skill (e.g., correctly pruning fruit trees), and the gaining of a concept (e.g., that, in a variety of ways, all living things reproduce themselves).

3. Procedures to attain objectives. The specific procedures to be used to achieve the specific program objectives should be identified. More than one activity or procedure may be selected to achieve a certain objective. And, more than one objective may be achieved by a certain activity.

4. Evaluation methods and instruments. Numerous kinds of evaluation techniques and instruments should be identified in order to collect data and analyze the degree of achievement of the major program goals and specific objectives. Both obtrusive and unobtrusive data may be collected and used. Included might be teacher and parent-written anecdotes; numbers of students, teachers, and others participating in a program; degree of facility vandalism; surveys; written and oral observations by visitors to the program; student attendance records; individual and class special projects--amount and degree of accomplishment; written attitude tests for teachers, students, and/or parents; student attainment on teacher-designed and/or standardized tests, and many others.

In addition, the following suggestions might be incorporated in the total program evaluation design.

The process of program development and operation should be evaluated. A number of questions should be posed and answered: To what extent is the program an integral part of the rest of the school curriculum--the "inside education?" Are parents aware of the objectives of the program? Are teachers? Have students been provided opportunities to plan their own learning activities? Is long-range planning being carried out? Have efforts been made to keep the board of education well informed about the program? There are many other appropriate questions which should be raised.

Base-line data should be collected as an initial step in the evaluation process. Conditions as they exist before the program begins, before each

activity or procedure starts, should be described and documented. Unless this is done, it will be impossible at a later date to describe all the changes effected by program activities.

Related to the collecting of base-line data, some educators may wish to carry out longitudinal studies of their students. These studies may begin with the collection of base-line data and continue with periodic collection of certain data over a period of years until they terminate as many as 5, 10, or even 15 or 20 years later. Few studies of this nature are carried out in education, even though they can be of great value to educators. Especially related to farm and garden programs would be the collecting of data regarding individual leisure-time activities, vocational pursuits, family life, and parent and taxpayer attitudes toward the individual schools.

Finally, it might be helpful to draw an evaluation time line as an aid to carrying out evaluation as an integral, continuous part of a farm or garden program. This would, of course, be subject to change but could be a useful guide to educators as they view a program for a year or a longer period of time.

Expanding and Continuing Programs

A continuing advisory committee composed of representatives of all involved and interested groups should be established to carry out planning and provide guidance and leadership in the program.

New ways must be continually sought to achieve greater use of the garden and/or farm property, facilities, and equipment for learning purposes by people of all ages to ensure community involvement in and knowledge of the program; to acquire needed facilities and equipment (and possibly more

land); to provide higher quality learning experiences in all areas of the curriculum; and to integrate better those learnings which occur in the outdoor education programs with those which occur in the indoor classrooms.

ONGOING PROGRAMS WHICH MAY BE VISITED

Selected school districts and agencies which are currently operating farm and garden programs that may be visited are as follows:

Albion Hills Conservation Field Center, Bolton Ontario, Canada (farm)

Battle Creek Public Schools, Battle Creek, Michigan (farm and garden)

Bloomfield Hills Public Schools, Bloomfield Hills, Michigan (farm and garden)

Rockford Park District, Rockford, Illinois (farm)

The Plains Conservation Center, Denver, Colorado (pioneer farm)

Tyler Public Schools, Tyler, Texas (farm)

USE OF PRIVATE FACILITIES

Some schools and school districts are using private farm facilities for elementary school farm programs. Usually a minimum fee per child is charged.

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